

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 73.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-007690**Date Inspected:** 24-Jun-2009**Project Name:** SAS Superstructure**OSM Arrival Time:** 800**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1800**Contractor:** HoChang, Korea**Location:** Unyang/Changwon, Korea

<b>CWI Name:</b>	Sang Ho Kwak		
<b>Inspected CWI report:</b>	Yes	No	N/A
<b>Electrode to specification:</b>	Yes	No	N/A
<b>Qualified Welders:</b>	Yes	No	N/A
<b>Approved Drawings:</b>	Yes	No	N/A

<b>CWI Present:</b>	Yes	No
<b>Rod Oven in Use:</b>	Yes	No N/A
<b>Weld Procedures Followed:</b>	Yes	No N/A
<b>Verified Joint Fit-up:</b>	Yes	No N/A
<b>Approved WPS:</b>	Yes	No N/A
<b>Delayed / Cancelled:</b>	Yes	No N/A

**Bridge No:** 34-0006**Component:** Pier E2 bearing and Shear key**Summary of Items Observed:**

The following report is based on METS observations at HoChang Machinery Industries (HCMI). Current work: Casting, forging and machining.

On this date the Caltrans Quality Assurance (QA) inspector, Dong J. Shin arrived at HoChang Machinery Industries (HCMI) located at Unyang, Korea and DooSan Heavy Industries (DHIC) located at Changwon, Korea. The Purpose of this trip was to observe quality control during fabrication and process of following items.

**Forging**

1. Bearing Bottom Housing (B1-07/F07302-010): Completed final UT.
2. Bearing Bottom Housing (B2-07/F07302-020): Completed final UT.
3. Bearing Bottom Housing (B3-07/F07302-030): Completed final UT.
4. Bearing Bottom Housing (B4-07/F07302-040): Completed MPT.
5. Spherical Ring (S1-07/F07302-050): Completed final UT.
6. Spherical Ring (S2-07/F07302-060): Completed final UT.
7. Spherical Ring (S3-07/F07302-070): Completed final UT.
8. Spherical Ring (S4-07/F07302-080): Completed final UT.
9. Solid Shaft (B1-02/F07302-090): Completed final UT.
10. Solid Shaft (B2-02/F07302-100): Completed final UT.
11. Solid Shaft (B3-02/F07302-110): Completed MPT.
12. Solid Shaft (B4-02/F07302-120): Completed MPT.

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- F number is DooSan Production Number.
- B number is drawing Number.

## Casting

On this date DHIC continued repair welding on castings, QA inspector, HMIC QC Inspector and DHIC QC inspector has checked welding parameters prior start repair welding. Welding process utilized Flux Core Arc Welding (FCAW) with E81T1-K2, 1.6mm diameter Flux Core wire Manufacture by SEAH-ESAB, Brand name Dual shield 1181-K2. QA inspector checked welding parameters of 23-26 volts, 210-250 amps, travel speed 13-16 cm/min, Gas flow 10-25l/min, preheat temperature over 100°C and 24 hours maintaining preheat temperature. All welding parameters comply with approved welding procedure specification No A-F-Z1Z1-219.

DHIC NDT technician Mr. KS. Lee (UT) and Mr. SD. Lee have performed final MT and UT on S3-01(Stub), B3-06(Bearing top housing) and B2-01-2(Bearing Hold Down). QA inspector checked following items prior to testing:

MT: lifting power, pie gauge magnetic field strength, and calibration date.

UT: Calibration date, calibration date and set DAC Curve, transducer size and frequency.

Transducer Used: Straight Beam: Dia. 24mm, 2MHz. Angle Beam: 20 x 22mm, 1MHz, 45°.

Dual element Straight beam: 6 x 20mm, 4MHz and Miniature angle: 8 x 9mm, 2MHz, 45°.

1. Bearing Top Housing(B1-06, C07039-010): Continue to repair welding.
2. Bearing Top Housing(B2-06, C07039-020): Continue to repair welding.
3. Bearing Top Housing(B3-06, C07039-030): Completed Final UT.
4. Bearing Top Housing(B4-06, C07039-040): Start final UT.
5. Bearing Hold Down Assembly (B1-01-1, C07039-050): Completed Final UT.
6. Bearing Hold Down Assembly (B1-01-2, C07039-060): Completed Final UT.
7. Bearing Hold Down Assembly (B2-01-1, C07039-070): Completed Final UT.
8. Bearing Hold Down Assembly (B2-01-2, C07039-080): Completed final UT.
9. Bearing Hold Down Assembly (B3-01-1, C07039-170): Completed Final UT.
10. Bearing Hold Down Assembly (B3-01-2, C07039-180): Completed Final UT.
11. Bearing Hold Down Assembly (B4-01-1, C07039-190): Completed Final UT.
12. Bearing Hold Down Assembly (B4-01-2, C07039-200): Completed final UT.
13. Shear Key Stub(S1-01, C07039-090): Completed PWHT.
14. Shear Key Stub(S2-01, C07039-100): Completed PWHT.
15. Shear Key Stub(S3-01, C07039-110): Completed final UT.
16. Shear Key Stub(S4-01, C07039-120): Continue to repair welding.
17. Shear key Housing(S1-03, C07039-130): Completed repair welding.
18. Shear key Housing(S2-03, C07039-140): Completed PWHT.
19. Shear key Housing(S3-03, C07039-150): Continue to repair welding.
20. Shear key Housing(S4-03, C07039-160): Continue to repair welding.

\* S and B number is drawing number.

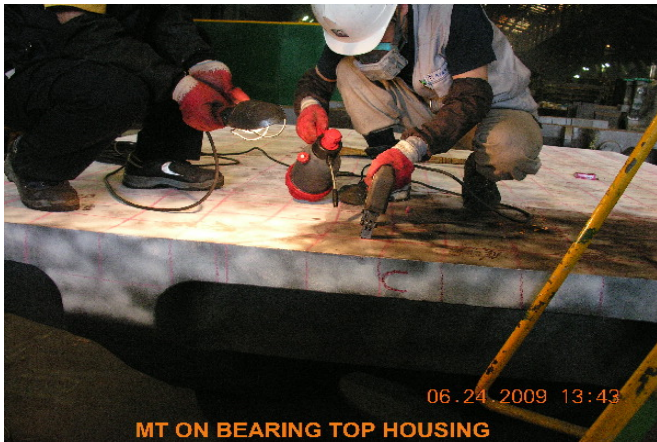
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\* C number is DSHI ID number



## Summary of Conversations:

\*Discuss with Mr. S. H. Kwak regarding general project schedule.

## Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Nina Choy, (510) 385-5910, who represents the Office of Structural Materials for your project.

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**Inspected By:** Shin,DJ

Quality Assurance Inspector

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**Reviewed By:** Lanz,Joe

QA Reviewer